NanoGround
Ground Infrastructure Software

Where Your Satellite Data Meets Earth – Accelerate Your Mission with Turn-key Software for Ground Segment Integration

🌐 gomspace.com ✉ sales@gomspace.com

Save Time and Effort in Ground Segment Development

NanoGround provides a ready-to-use ground infrastructure deployed with only a few commands. It integrates with your ground station, manages network protocols, and provides transparent access to satellite control and mission data directly from your mission server.

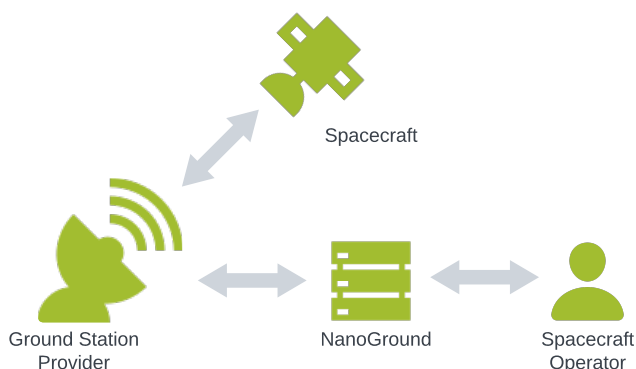## Streamline Operations with End-to-End Communication

NanoGround makes operating a small-satellite as simple as managing a local network server. It registers a network interface on your mission server that connects directly to the satellite, providing end-to-end communication from your mission server to your payload.

Reduce Costs by Leveraging Free Open-Source Network Tools

Use standard Linux networking tools such as SSH and rsync to operate your satellite over a NanoCom Link SX radio link. No need for custom tools or protocols – use the tools you know and trust.

Deploy Fast and Integrate with Ease

NanoGround uses Docker and Docker Compose for fast and portable setup. It offers a simple REST API with a Swagger UI for integration and management.

Spacecraft

Ground Station Provider — NanoGround — Spacecraft Operator

Supported Satellite Transceivers

· GomSpace NanoCom Link S, X, and SX
· GomSpace NanoCom AX2150

Supported Ground Equipment

· Kratos qRadio, qMR, qRX
· Newtec MDM9000
· Custom (requires user provided code)

Verified Ground Station Services

· Leaf Space Leaf Line TT&C (S-Band)
· KSat Lite (S-band, X-band)

Supported Tools and Protocols

· Internet Protocol version 4 (IPv4)
· Transmission Control Protocol (TCP)
· User Datagram Protocol (UDP)
· Cubesat Space Protocol (CSP)
· GomSpace Control Protocols
· GomSpace Beacon Protocol
· Linux tools such as SSH, rsync, ping
· GomSpace unidirectional file transfer protocol (GSUFTP)
· GomSpace Hands-off Operations Platform (HOOP)
· GomSpace Authenticated Encryption aligned with CCSDS 355.0-B-2 for secure RF communications
· GomSpace Cryptographic Key Management aligned with CCSDS 354.0-M-1

Minimum System Requirements

· OS: Linux (verified on Ubuntu Server 22.04)
· Memory: 8 GB
· Disk: 10 GB